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GEOLOGICAL SURVEY
R. W. BROCK, DIRECTOR.

MEMOIR 42

NO. 1, ANTHROPOLOGICAL SERIES.

The Double-Curve Motive in Northeastern Algonkian Art

BY

Frank G. Speck

OTTAWA
GOVERNMENT PRINTING BUREAU
1914

No. 1310

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CONTENTS.

	PAGE
Introductory	1
Occurrences of the motive south of the St. Lawrence river	4
Primary area. Group I: Penobscot, Malecite, Passamaquoddy, and Micmac	4
Penobscot	4
Malecite and Passamaquoddy	6
Micmac	7
Group III: Adjacent areas south of the St. Lawrence	8
Iroquois (including Wyandot)	8
Delaware	9
Mohegan	9
Occurrences of the motive north of the St. Lawrence river	10
Primary area. Group I: Naskapi, Montagnais, Mistassini	10
Naskapi	10
Montagnais	10
Mistassini, Têtes de Boule, and Huron	12
Adjacent areas westward	13
Group II: Cree, Ojibwa, Blackfoot	13
Group IV: Sauk and Fox, Menomini, Pottawatomi	13
Summary	14

ILLUSTRATIONS.

		PAGE
Plate	I. Penobscot chief's regalia	End
"	II. Malecite beaded collar	"
"	III. a— Malecite squaw cap	"
	b— Malecite beaded breast-piece	"
"	IV. a— Micmac beaded squaw cap	"
	b— Micmac beaded cap for women	"
"	V. Micmac beaded coat	"
"	VI. a— Iroquois woman's beaded leggings	"
	b— Iroquois woman's beaded leggings	"
	c— Huron beaded case for scissors	"
	d— Iroquois woman's beaded leggings	"
"	VII. a— Iroquois girdle for cradle-board	"
	b— Huron beaded work-bag, made from woman's skirt	"
	c— Iroquois girdle for cradle-board	"
"	VIII. Naskapi coat	"
"	IX. a— Montagnais bark box with cover	"
	b— Cover of bark box	"
	c— Montagnais bark basket	"
	d— Montagnais bark box with lid	"

"	X.	Montagnais beaded sealskin tobacco pouches	End
"	XI.	a— Montagnais woman's cap, Bersimis type	"
		b— Montagnais beaded sealskin shoulder bag, lined with caribou skin and trimmed with marten	"
"	XII.	a— Montagnais beaded cloth bag	"
		b— Montagnais beaded cloth bag	"
"		c— Montagnais cloth powder sack, embroidered	"
		d— Montagnais beaded sealskin tobacco pouch	"
"	XIII.	a— Montagnais beaded band for hunter's shot pouch	"
		b— Montagnais beaded band for hunter's shot pouch	"
		c— Montagnais silk-embroidered band for hunter's shot pouch	"
"	XIV.	a— Mistassini beaded pouch	"
		b— Mistassini beaded pouch	"
		c— Mistassini beaded pouch	"
		d— Mistassini beaded piece for cap decoration	"
"	XV.	Naskapi or Mistassini beaded shot pouch	"
"	XVI.	a— Wyandot beaded purse	"
		b— Wyandot beaded moccasin	"
		c— Wyandot buckskin beaded basket	"
"	XVII.	a— Huron winter moccasin	"
		b— Huron slipper with moose-hair embroidery	"
"	XVIII.	Osage beaded moccasin	"
Figure	1.	Some varieties of the elementary unit	"
"	2.	Double-curve designs graded according to complexity	"
"	3.	Design from Penobscot cradle-board	"
"	4.	Penobscot double-curve designs	"
"	5.	(a) Penobscot double-curve design denoting central place of mourning in ceremony over a dead chief	"
		(b) Double-curve design denoting union of tribes assembled for ceremony	"
"	6.	Malecite double-curve designs	"
"	7.	Passamaquoddy double-curve designs	"
"	8.	Micmac double-curve designs	"
"	9.	Micmac double-curve designs	"
"	10.	Iroquois double-curve designs	"
"	11.	(a) Delaware double-curve designs	"
		(b) Mohegan double-curve design	"
		(c) Mohegan example of double-curve	"
		(d) St. Francis Abenaki double-curve designs	"
"	12.	Naskapi double-curve designs	"
"	13.	(a) Double-curve design from Naskapi woman's hat	"
		(b) Eskimo double-curve design	"
"	14.	Detail of braided wool cord used for embroidery by the Montagnais	"
"	15.	Montagnais (Lake St. John) double-curve designs, etched on birch bark	"
"	16.	Montagnais (Bersimis) double-curve designs	"

Figure	17.	Mistassini double-curve designs	End
"	18.	Huron double-curve designs from woman's leggings	"
"	19.	Plains Cree (?) double-curve designs	"
"	20.	Blackfoot double-curve designs. Northern Plains double-curve designs	"
"	21.	Ojibwa double-curve designs	"
"	22.	Sauk and Fox double-curve designs	"
"	23.	Pottawatomi double-curve designs	"
"	24.	Winnebago (?) double-curve design	"
"	25.	General distribution of the prevailing types of design	"

The Double-Curve Motive in Northeastern Algonkian Art.

Introductory

In the following brief paper is presented a review of a very characteristic and widespread motive in decorative art, brought to light through investigations during the past few years among the Algonkians of the northeastern area embraced in the valley of the St. Lawrence river and the contiguous regions north and south of it. The tribes of the area among whom the motive referred to is so predominant are chiefly the Montagnais and Naskapi of the Labrador peninsula, the Mistassini of Lake Mistassini, the Micmac of the Maritime Provinces of Canada, the Malecite of St. John river, New Brunswick, and the Penobscot and Passamaquoddy of Maine. Among certain tribes adjacent to these the motive is also more or less prominent. The motive itself is what may be termed the "double-curve", consisting of two opposed incurves as a foundation element, with embellishments more or less elaborate modifying the enclosed space, and with variations in the shape and proportions of the whole. This simple double-curve appears as a sort of unit, capable of being subjected to such a variety of augments, not infrequently distortive, as to become scarcely recognizable at first or second sight. Fig. 1 shows some varieties of the primary foundation element with deep angular, or shallow curves. Fig. 2 introduces modifications of the interior by the addition of ornaments ranging from the simplest to the most elaborate forms, these being from Penobscot, Micmac, and Montagnais specimens, while Fig. 3, from a Penobscot cradle-board, is the most elaborate example so far encountered in this area. Figures of the most confused appearance, produced in beadwork or carved on wood surfaces in the art manufactures of the tribes mentioned, may generally

be resolved into one or more of these double-curve brackets with interior ornamental fillings. An attempt to analyse the highly complex curve designs which appear in intricate combination upon decorated surfaces from this region at first generally results in confusion to the eye, the curved interlacing figures taking on definite outlines only after the underlying unit element has been determined. We find the brackets in different positions, sometimes on end, sometimes in doubles back to back, and sometimes upright. This complexity in the general character of the figures throughout the whole area, appears in the series of plates accompanying this paper (Plates I-X) illustrated from the collection of the Geological Survey of Canada and the Heye collection.

If we accept the double-curve as the primary element in the art of the region, then the floral designs and geometrical figures form a class subordinate in importance, which we may term the secondary class. The realistic floral patterns and the geometrical designs run with great similarity through the whole northeastern region. The former include the three lobed figure, the blossom, bud, leaf, and tendril. The latter include the cross-hatched diamond, circle, oval, zigzag, rectangle, and serrated border. Both classes are easily recognizable in practically all the tribes of the group, incidentally showing, in the geometrical patterns, not a little resemblance to characteristic Eskimo forms.

In some tribes of the northeastern group, particularly the Naskapi, our primary or double-curve element is found almost exclusively, while as we proceed westward the floral elements appear, as among the Montagnais, gradually growing in importance until we reach the Great Lakes region, where the secondary floral forms take up almost the whole field. So, too, south of the St. Lawrence the primary and the floral elements merge, the former losing character and the latter taking on more prominence with each succeeding tribe to the westward.

This transition shows quite clearly in a comparison of the figure groups from the different tribes. It will be seen that among the tribes west of an approximately direct line from the lower end of Hudson bay to New England,the double-curve as a primary motive gives place to the realistic floral designs and becomes merely secondary or extremely modified.

What the origin and history of the double-curve design may have been it seems unsafe to say. It occurs most abundantly

and is most characteristic among the extreme northern and eastern Algonkian tribes. Since it is restricted to them as a fundamental motive, it may be regarded from two points of view: it may have originated in the northeast and drifted westward, or it may have been derived from an original old American design element that became remodelled and specialized to its present form among some of these tribes and was subsequently adopted by their neighbours in general. The latter supposition seems a little more plausible. The outskirts of the range of this pattern embrace the Menomini, Iroquois, Delaware, Pottawatomi, Sauk and Fox, Blackfoot, Cree, and Ojibwa. There may, of course, be other groups sharing it, but I have not had access to adequate collections from the tribes where it might be expected. My direct acquaintance with the motive covers the coast and interior Montagnais, Mistassini, Naskapi, Malecite, Penobscot, Passamaquoddy, and Huron, much of the material available for study being now in the Victoria Memorial Museum, Ottawa. Several other trips, in quest of art motives, were made to tribes related in some ways to those having the double curve, the Cherokee of North Carolina and Mohegan of Connecticut. The other material presented here has been derived largely from the collection of Mr. Heye, University of Pennsylvania Museum, and the Peabody Museum, Cambridge. Concerning the derived material, much, naturally, could still be wished for, especially as regards actual tribal and local identity of specimens and possible symbolism or interpretation. From the fact, however, that those tribes where the design is most characteristic do not have any particular symbolism in art, one might presume that it is throughout much of the region primarily an ornamental rather than a symbolic motive.

For the purposes of this paper it seems preferable to discuss the data we have at hand under tribal headings, presenting a few conclusions in a final summary.

Occurrences of the Motive South of St. Lawrence River.

PRIMARY AREA. GROUP I: PENOBSCOT, MALECITE, PASSAMAQUODDY, AND MICMAC.

Penobscot.

The Penobscot Indians of Maine are about at the southern boundary of the area of distribution. The double-curve with them is the unit of design, embracing practically all their patterns except a few realistic floral and a few geometrical ones. Fig. 4 shows a selected set fairly typical for this tribe. Here the field of decoration includes clothing, birch bark articles, and handles of utensils. The technique was formerly in moose hair embroidery and painting, which were later replaced by beadwork. Etching on the surface of birch bark and incising in wood and bone also display the same designs. Gently rounding curves characterize the Penobscot examples, which range from comparatively simple forms to the most elaborate. Taken as a whole they show little uniformity.

They term the decorations in general *beskwasawek* "flower or blossom," but do not attach any particular identity to form, except to class the ovate leaves as willow leaves, and the spirals as fern shoots and tendrils in the most haphazard way. There seems, however, to have been in the past, if not now, judging from surviving ideas, a slight tendency for the women to connect the figures with medicinal plants, as though there might have been some feeling of protective magic underlying their use as decorations upon personal property. This feature, however, is not by any means an emphatic one.

Realistic floral figures, leaves, buds, blossoms, merge with the curve types, as augments, and also appear separately as design elements, though they remain secondary in importance to the double-curve motive.

The primary significance of the double-curve and scroll figures among the Penobscot was a sort of political symbolism. The double curves represented the bonds uniting the different

members of the chief's family, the subdivisions of the tribe, or the officers of the council. This symbolism has, however, been almost totally forgotten except by a few of the older people. It has been completely submerged by the vague floral symbolism mentioned before. Where the simple double-curve represents an enclosure, the interior ornaments, in the shape of leaf-like ovals, diamond, spurs, or zigzags, stand for the particular things conceived of within the enclosure. These may be persons, officers, villages, or tribes. Where clusters of the double-curve figures appear—it may be back to back, side to side, or in other relations—they denote the bonds of alliance in a general way. It is only in a few special instances that definite interpretations can be given to the ornaments within the curves, as in some of the chief's regalia capes or collars, where the interior ornaments stand for the members of his family who may be eligible to inherit his office, his councilmen and subordinate chiefs.

Where these designs function most seriously is upon the articles of regalia worn by chiefs during the ceremonies. We have several interesting specimens of these. One in particular is a mourning cape to be worn by one of the chief officers in the ceremony of electing a new chief (Plate I). The idea here is that the assembly is in mourning for the deceased chief and the mourning remains on the people until the new chief is elected. This example represents that stage of the ceremony preceding the actual election, while the mourning is still on. The cape itself may be divided into three areas, the outer area, with a purely decorative ribbon appliqué, the whole inner circumference, including the long ends, embroidered with a maze of scrolls and double-curves, and the lower central area in which may be seen double-curve enclosures, within which are a number of minor ornaments and a diamond shaped figure, the whole filled in between the lines of white beadwork with a dark ribbon interior. The inner border area (Fig. 5, b) represents in general the different villages, family and tribal units gathered for the occasion and bound together by the ties of friendship. It is in the lower central area (Fig. 5, a) that we strike the main significance of the design. Here the darkened central triangle denotes the place of mourning, that is, the village at Oldtown where the deceased chief is being replaced by his successor. The other oval-like ornaments, spurs and trian-

gles, represent the officers, headmen, and members of the chiefs' families, all marked in mourning by the black ribbon filling.

A few remarks applying to the Penobscot designs, which may incidentally have a bearing upon the art of neighbouring regions, may supply a few helpful details. A realistic plant and political symbolic foundation here seems to have become the ruling motive in the double-curve figures, while geographical and landscape representations are, nevertheless, not lacking among them. The interpretations, however, as may be imagined from the complexity and random character of the curved interiors, are by no means rigid or even general. Each artist, after starting the decoration with the conventional double-curves, falls, it seems, upon his or her own ingenuity in filling in the middles with what looks to him like this or that plant or some picture or representation of alliance. In consequence of this individual play of fancy it is hard to get interpretations for designs and their parts except from those who have executed them. Nevertheless, through all the freedom of style a number of conventionalities are maintained which give a homogeneous tone to the designs as a whole and make them decidedly distinctive for the tribe. Such, for example, are the cross-hatched ovals and triangles, the spreading curves, the hump in the middle of the curves with the central embellishments on it, the embellishments midway on opposite vertical sides and those flanking the central elevation, and the peculiar little parallel lines so often seen in the last mentioned places. By thus assembling the common peculiarities which run through most of the designs in each tribe, one may hope to obtain a basis for a comparative study. The determination, however, of any particular type may have to be decided by the eye, since the designs appear to vary about as much in the same tribe as between tribes in proximity to each other.

Malecite and Passamaquoddy.

The Malecite Indians of St. John river, New Brunswick, are the next people encountered east of the Penobscots. South of them, on Passamaquoddy bay and St. Croix river, in Maine, are the related Passamaquoddy. In the art work of both tribes the double-curve predominates, though no particularly distinctive

characteristics occur. The designs are found in beadwork, moose hair work, bark etching, and, rather rarely, in wood carving. Realistic floral designs of the usual form are also common. No symbolism has so far been met with in either tribe,[1] the patterns in general bearing the name of flowers.

In Fig. 6 and Plates II and III are shown some Malecite and in Fig. 7 some Passamaquoddy examples.

Micmac.

The Micmacs of Nova Scotia and New Brunswick express their artistic feeling by decorating the surface of birch-bark receptacles with dyed porcupine quills forming a sort of quill mosaic, and by embroidering the surface of cloth or leather with bead-work. In the former, practically all the designs are geometrical. It is in the latter, that we encounter the typical double-curve motive as the predominating design. Floral designs are here subordinate. While the double-curve figures of the Micmac are practically the same as among the other tribes south of the St. Lawrence, as far west as the motive is found, we nevertheless meet with a few distinctive features. Chief among these is a beautiful symmetry in outline. Evenly rounded marginal curves and elaborate interior fillings characterize the work of the tribe. Another point of distinction is the horizontal bar in the centre of the enclosed area supported upon two out-curves from the bottom. This interior pedestal, as it were, seems to form a mark of identity for the Micmac designs, though we are, as yet, at a loss to explain it. Figs. 8 and 9 and Plates IV and V show typical forms taken from Micmac chiefs' coats, women's capes and caps, and shoulder ornaments.

While one might expect to find a similar interpretation of the figures among the Micmacs as among the Penobscots, yet nothing definite in the way of interpretation or symbolism seems to have come to light, even after repeated inquiry. Vague floral representations are the only ideas suggested by inform ants.[2]

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1 Mr. W. H. Mechling has not as yet reported any symbolism among the Malecite.

2 Information from Mr. W. D. Wallis.

GROUP III: ADJACENT AREAS SOUTH OF THE ST. LAWRENCE.

South and west of the true double-curve area, terminating with the Penobscots, we encounter related forms of the motive among the Iroquois and Delawares. Though somewhat outside of our field of direct investigation, a few comparative remarks may be appropriate.

Iroquois (including Wyandot.)

Though we have as yet no complete study on Iroquois art, some features are, nevertheless, apparent enough in the Iroquois material in museums to warrant a few comparisons. The Iroquois have the double-curve motive very prominently displayed in their beadwork and former quill work. A few of their figures are identical with those of the Algonkian tribes east of them. The greater portion, however, exhibit the curves turning outward instead of inward. We find these designs in abundance upon leggings, moccasin flaps, skirts, and bags. Here, incidentally, as among the Penobscots and their eastern neighbours, the floral type of art seems to have gradually come to supersede the double curve in later times. Regarding the symbolism of the curved figures it is reported that they are primarily representations of celestial, geographical, and mythical phenomena, such as sky dome, world tree, scroll or helix, chiefs' horns and sun.[1] The scrolls themselves denote horns of chieftancy, those curving outward symbolizing a living chief, while the in-curved forms are emblematical of a dead chief. The border curve or scroll decorations of beadwork in general are, as I have learned, known among the Mohawks as *tekana'karar$^{n}_{o}$* "horned trimmings", even by individuals who are not aware of their symbolism.

The Tuscarora call the scrolls violets (literally, "bowing the head") and regard them as a sign of good luck, deriving the idea from a children's game of locking the flower heads together. The scroll violet is the symbol of the winner. The Mohawks of Deseronto call them "fern heads".

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[1] Information, Mr. A. C. Parker; see also N.Y. State Dept. of Education, Museum Bulletin No. 149, p. 47.

Technically it is not a difficult task to identify at sight the double curves of the Iroquois as distinguished from those of the Algonkians. Among the former the outcurves and series of drooping scrolls or half curves, as appear in the figures (Fig. 10), are very distinctive. The Iroquois figures are smaller and there is, moreover, a dearth of the interior embellishments so frequent in Algonkian design. (See also Plates VI, VII, XVI, XVII.)

The almost total absence of similar designs among the related Cherokee seems significant. Only in a few figures stamped on pottery do we meet with anything at all like them.

Delaware.

Closely related in form to the Iroquois curve designs are those of the Delaware. Specimens from both the Canadian and Oklahoma Delawares show the same features, so we may regard them as fundamental in Delaware art until some one gives us a closer study of the field. Fig. 11 (a) shows examples, though unfortunately we have no definite data at hand from the collectors concerning the possible symbolism or even naming. One is, however, almost tempted to guess, judging from neighbouring instances, that the domes surmounted by the curves are geographical and celestial representations.

Mohegan

Only the most fragmentary evidence comes to hand to show that the southern New England tribes shared the motive. In the floral beadwork designs executed some years ago, by a very old Niantic woman, living among the Mohegan, a modified double-curve pattern was often manifested. Also in the designs painted upon old Mohegan baskets we notice some figures almost identical with the Iroquois curves.[1] They evidently belong to the same series. Examples are shown in Fig. 11 (b, c.) In Fig. 11 (d) is given a St. Francis Abenaki derivation of the motive, though perhaps the interpretation is rather far-fetched.

[1] To be dealt with in a subsequent paper of this series.

Occurrences of the Motive North of the St. Lawrence River.

PRIMARY AREA. GROUP 1: NASKAPI, MONTAGNAIS, MISTASSINI.

Naskapi.

The Naskapi, in several related bands, inhabit nearly the whole interior of the Labrador peninsula north of the height of land dividing the Arctic watershed from that of the Gulf of St. Lawrence. These people paint their designs with pigments made from bird's eggs and fish upon caribou skin articles of clothing, bags, utensils and the like. Although a little beadwork is done, the whole of Naskapi art may be included under painting. Since these Indians and their neighbours remain today about the most uninfluenced of the Algonkian tribes, we are enabled through them to determine some of the earliest common characteristics of the stock.

In the Naskapi examples (Figs. 12, 13; Plate VIII) considerable uniformity prevails. The common type has a smaller curve or two ellipses superimposed upon the centre of the main double-curve, which generally has sweeping shallow sides. The effect is very artistic. Practically no flowers except the three petal or leaf-like pattern, which is found both north and south of the St. Lawrence, appear in the designs of this tribe. No symbolism has as yet been found, though when more is known we can speak more definitely. The favourite scheme in the Naskapi figures is for the double-curve to be side by side between rows of the common Algonkian serrated stripes. This feature, appearing in the figures, is common from the Penobscots northward to the Naskapi, and is probably one of the most fundamental features of the whole eastern field.

An isolated example of the curve from the Labrador Eskimo, probably derived from the Naskapi, is shown in Fig. 13 (b).

Montagnais.

The bands of Indians who hunt south of the height of land in the Labrador peninsula southward to the St. Lawrence river

and the gulf are known collectively as Montagnais. Though divided into numerous local groups or tribes through this extensive tract, their culture follows certain lines of similarity, forming two general types, that of the interior and that of the St. Lawrence coast. The art motives of both are fairly homogeneous except that the characteristic etching on birch bark so prevalent among the interior divisons is practically absent on the coast, where birch bark is very scarce. The art techniques of moose hair embroidery and painting, however, were of common distribution, having given place in later times to beadwork, silk embroidery (the chain stitch),and a form of embroidery consisting of animal wool braid sewed upon leather or cloth to form designs. This braided woolen embroidery is quite intricate. Out of wool combed from the pelts of wild animals, threads are woven into cords in the manner shown in the accompanying sketch, as analysed by Mr. W. C. Orchard (Fig. 14). This may be termed a double braid on a double thread foundation.

Among the interior river and lake Montagnais, one of the richest fields of art lies in the already mentioned birch bark etchings. In this the designs are produced upon the surfaces of birch bark receptacles, baskets, etc., by scraping away the dark coating of the winter bark, leaving the light under surface as a background. The patterns consist of thin paper-bark stencils made by folding and biting designs in them with the teeth. These are tacked as patterns over the parts to be ornamented and scratched away round the edges. Examples of this work are shown (Plate IX), and also a set of designs copied from other specimens (Fig. 15).

The former design types fall only in a very general way within the double-curve province. As will be observed, the motive is much obscured by the broad line figures and the spreading elevated interiors. They are, however, very artistic. These figures are known among the people as trees, spruce or balsam, only in the most general indefinite way. They convey no symbolism so far as I have been able to learn. In the beadwork, silk and wool cord embroidery, floral patterns are most commonly employed, the figures in general being known as *wápuɣwun*[1] "flower". In some examples, however, an animal realism creeps

[1] ɣ(Greek gamma) represents a velar sonant stop.

in, the combination being recognized in the name. For instance, the figure in Plate X b shows a design known as *NEmec wapuwun* "fish flower", a combined plant and fish form being quite apparent. Other examples from the Montagnais woman's cap and beaded articles appear in Fig. 16. (See also Plates XI-XIII.)

The Montagnais show a strong tendency toward the modification of their simple double-curve designs into floral forms, this becoming more intense as they occur westward. From the western borders of the Montagnais we pass to the Têtes de Boule and Mistassini.

Mistassini, Têtes de Boule, and Huron.

The Mistassini, who hunt in the country around Lake Mistassini and trade at Rupert's House and Lake St. John, have more artistic tendencies than the Montagnais proper, with whom they are related. The former decorate articles of clothing, bags, and ornaments very profusely with beadwork and silk embroidery. In their designs, flowers and plant forms are most noticeable, though very often moulded into double-curve forms. Some examples of these handsome patterns are shown in Fig. 17. Here also inquiry fails so far to yield anything more definite than mere floral pattern making. The bitten paper-bark copy patterns supply practically all of the motives among these people. (See also Plates XIV and XV.)

Upon the waters of St. Maurice river, Que., dwell the Têtes de Boule, intermediate in type of culture and dialect between the eastern Ojibwa branches and the Montagnais. I have only recently begun investigations among them. Their beadwork shows the ruling motive to be floral, though tinged strongly with the double-curve motive.

The Hurons of Lorette, most probably through contact with the eastern Algonkian tribes since their disintegration, show strongly the influence of the double-curve element in their moose-hair embroidery. It is, however, possible that they have inherited their double-curve forms from their Iroquois parentage. Fig. 18 shows some examples. (See also Plate XVII.)

Adjacent Areas Westward.

GROUP II: CREE, OJIBWA, BLACKFOOT.

Ranging from the Montagnais westward almost to the Rocky mountains, we find the double-curve with weakening force pervading the designs of the Cree and Blackfoot. In the beadwork of both, as well as in some Cree quill work, the double-curve appears quite frequently, often in familiar guise, again almost lost in floral complexes. Even the Sarsi share the motive with the Blackfoot. Examples are shown in Figs. 19 and 20.

The Ojibwa, contrary to what might be expected, show even less of the double-curve than their neighbours, their art being so overwhelmingly floral. One example is shown in Fig. 21, though of doubtful identity.

The Missisauga, nevertheless, are so close to the true area of the double-curve that they employ it quite commonly.

GROUP IV: SAUK AND FOX, MENOMINI, POTTAWATOMI.

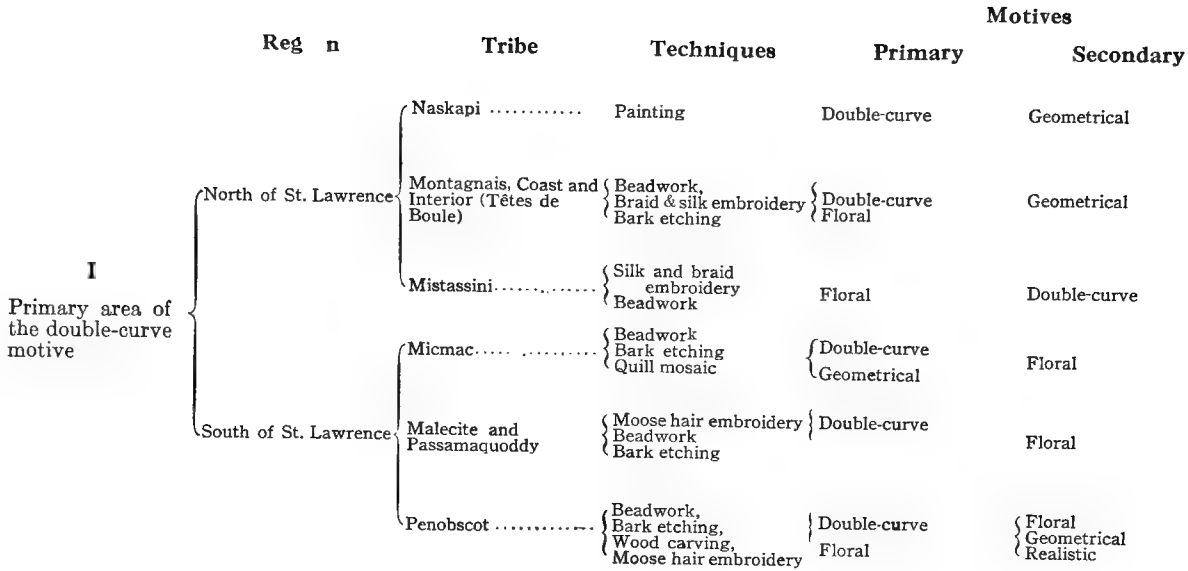
In a rather ill defined though probably a wide area in former times, south of the Great Lakes, among the northern members of the central Algonkian group, we find a distinctive series of designs, forms of which appear in Figs. 22 and 23. They occur with great frequency, chiefly among the Sauk and Fox,Menomini, and Pottawatomi, in beadwork and quillwork, and we also find them in Winnebago designs (Fig. 24). Here, if we pay attention to the foundation unit, we will observe the true incurving brackets enclosing interior decorations. This is identically the double-curve motive, modified to the extent of having very much broadened or thickened lines. This interesting series is closely related to the true double-curve series, showing only a divergence in detail. No studies have as yet been undertaken in this field of art, though Mr. A. B. Skinner reports that the Menomini, among whom these designs are very characteristic, attach no symbolism to them, considering them all in a vague way as floral decorative effects.

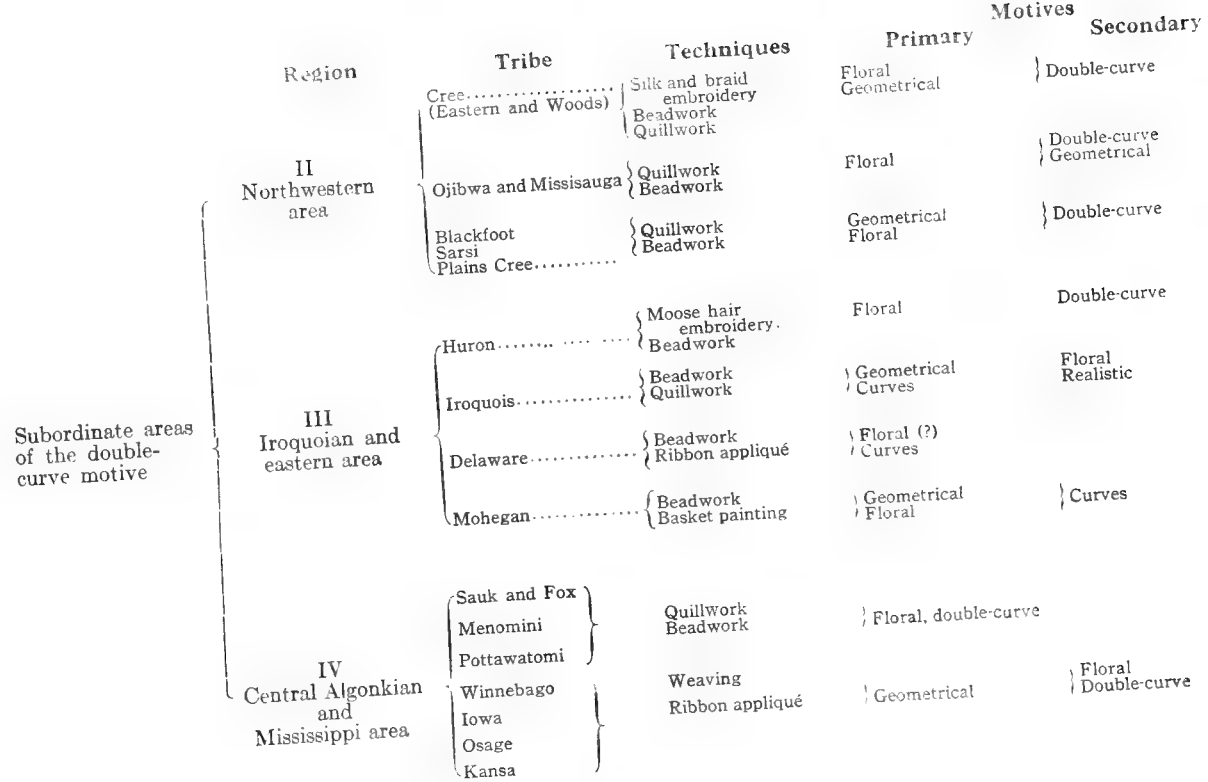
The motive in this region is so strong that it has been conveyed to Oklahoma by the central Algonkian tribes who have moved there, and it is now to be seen in the art of the Osage (Plate XVIII,) Kansa, and other southern Plains tribes. No information is, however, available from the collectors regarding possible interpretation or symbolism.

Summary.

The accompanying map (Fig. 25) shows some general conclusions on the distribution of the prevailing types of designs. The tribal designations, however, only give general locations, not by any means the tribal boundaries.

As a start in the study of the distribution of art motives of the northern, eastern, and central tribes, I present the following arrangement, giving the art characteristics in the whole general region where the double-curve is found. This scheme is only a suggestion, as, up to this point, the observations bearing upon all except the strictly northeastern divisions are based upon museum collections. Consequently the interpretations, except that presented under group I, may later have to undergo considerable alteration.


Region
Tribe
Techniques
Motives
Primary
Secondary
I
Primary area of the double-curve motive
North of St. Lawrence
South of St. Lawrence
Naskapi
Painting
Double-curve
Geometrical
Montagnais, Coast and Interior (Têtes de Boule)
Beadwork,
Braid & silk embroidery
Bark etching
Double-curve
Floral
Geometrical
Mistassini
Silk and braid embroidery
Beadwork
Floral
Double-curve
Micmac
Beadwork
Bark etching
Quill mosaic
Double-curve
Geometrical
Floral
Malecite and Passamaquoddy
Moose hair embroidery
Beadwork
Bark etching
Double-curve
Floral
Penobscot
Beadwork,
Bark etching,
Wood carving,
Moose hair embroidery
Double-curve
Floral
Floral
Geometrical
Realistic


Region
Tribe
Techniques
Motives
Primary
Secondary
Subordinate areas of the double-curve motive
II Northwestern area
Cree (Eastern and Woods)
Silk and braid embroidery
Beadwork
Quillwork
Floral
Geometrical
Double-curve
Ojibwa and Missisauga
Quillwork
Beadwork
Floral
Double-curve
Geometrical
Blackfoot
Sarsi
Plains Cree
Quillwork
Beadwork
Geometrical
Floral
Double-curve
III Iroquoian and eastern area
Huron
Moose hair embroidery
Beadwork
Floral
Double-curve
Iroquois
Beadwork
Quillwork
Geometrical
Curves
Floral
Realistic
Delaware
Beadwork
Ribbon appliqué
Floral (?)
Curves
Mohegan
Beadwork
Basket painting
Geometrical
Floral
Curves
IV Central Algonkian and Mississippi area
Sauk and Fox
Menomini
Pottawatomi
Quillwork
Beadwork
Floral, double-curve
Winnebago
Iowa
Osage
Kansa
Weaving
Ribbon appliqué
Geometrical
Floral
Double-curve

In conclusion it seems reasonable to suggest from the material at hand that we have, in the double-curve motive, an originally non-symbolic decorative element, a presumably indefinite plant or floral figure, common to all the members of the northeastern Algonkian group both north and south of the St. Lawrence. Passing from this primary area, the motive has been borrowed by other tribes westward, mostly Algonkian, and subjected to local modification. Among the Penobscot and perhaps their eastern neighbours the double-curve has acquired, to a certain degree, a symbolic value due to contact with the more politically complex Iroquois. Further investigation, however, which, it is hoped, this brief paper will stimulate, may nevertheless warrant changing some of these opinions, particularly as regards the existence of symbolism among the tribes east of the Penobscots and the inter-relation between their art as a whole and that of the Iroquois.

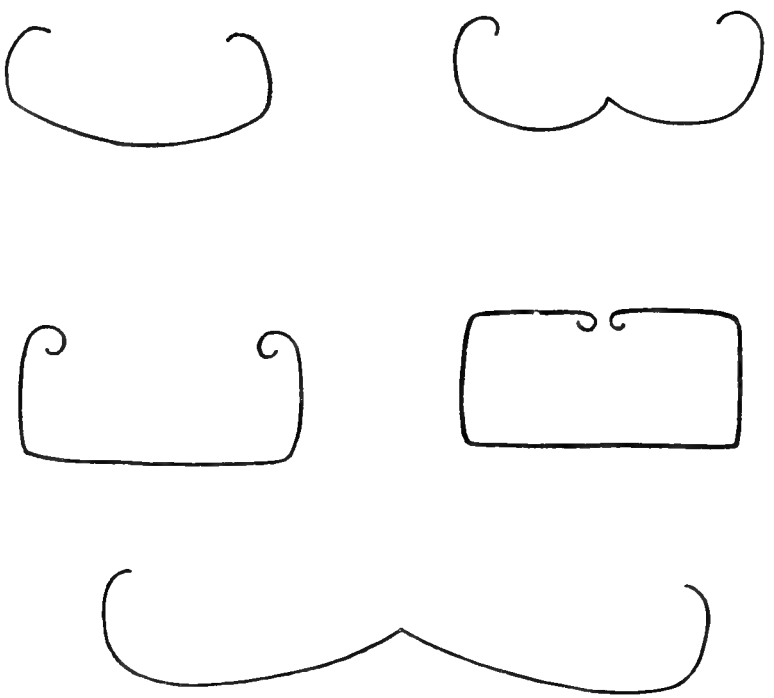


Fig. 1. Some varieties of the elementary unit.

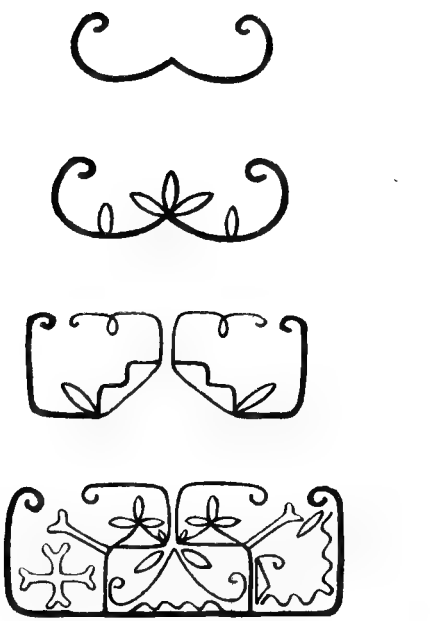


Fig. 2. Double-curve designs graded according to complexity.

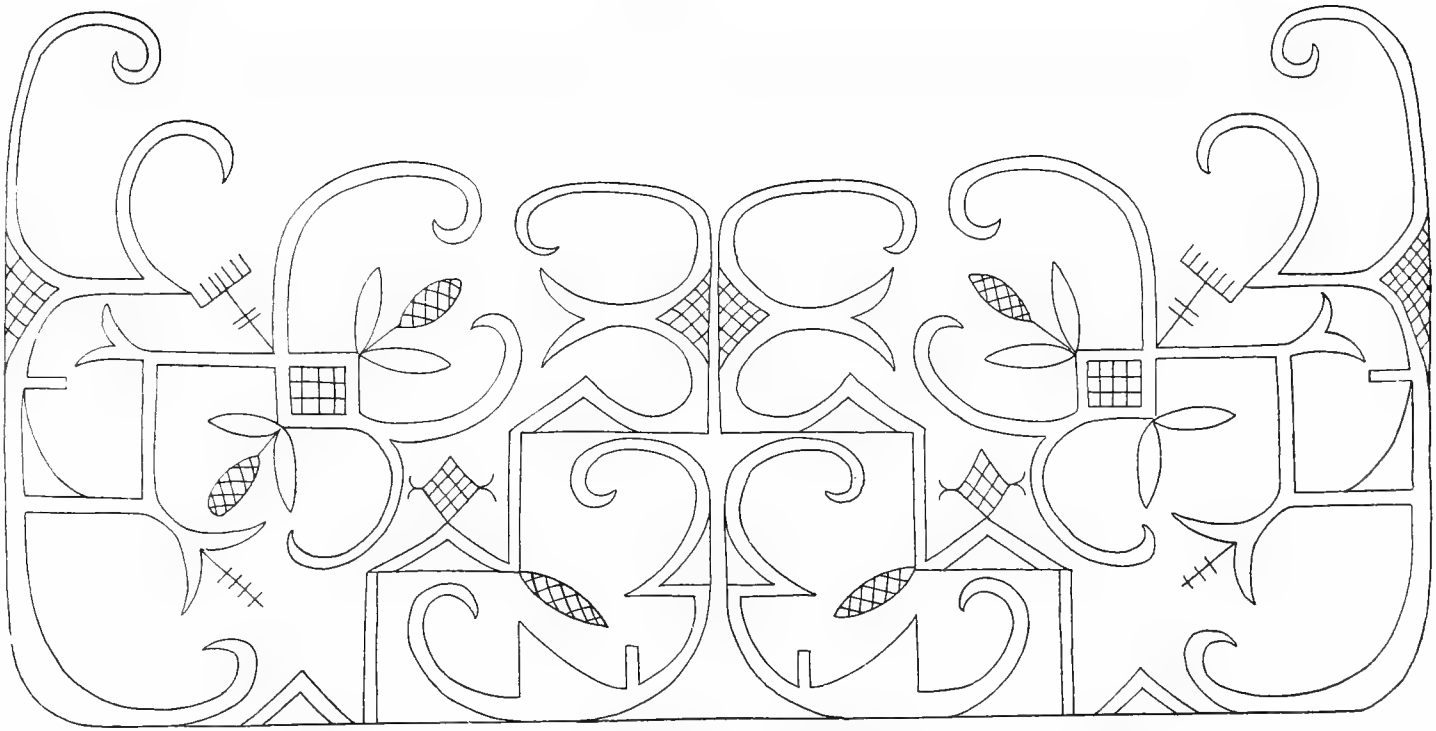


Fig. 3. Design from Penobscot cradle-board. Heye collection, Univ. of Pa. Museum.

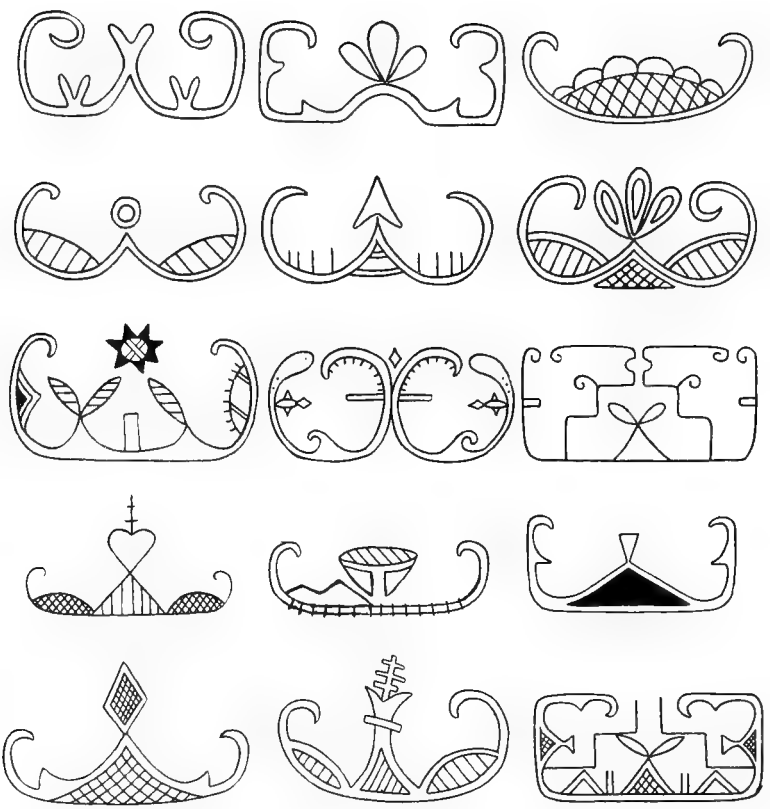


Fig. 4. Penobscot double-curve designs. Heye collection, Univ. of Pa. Museum.

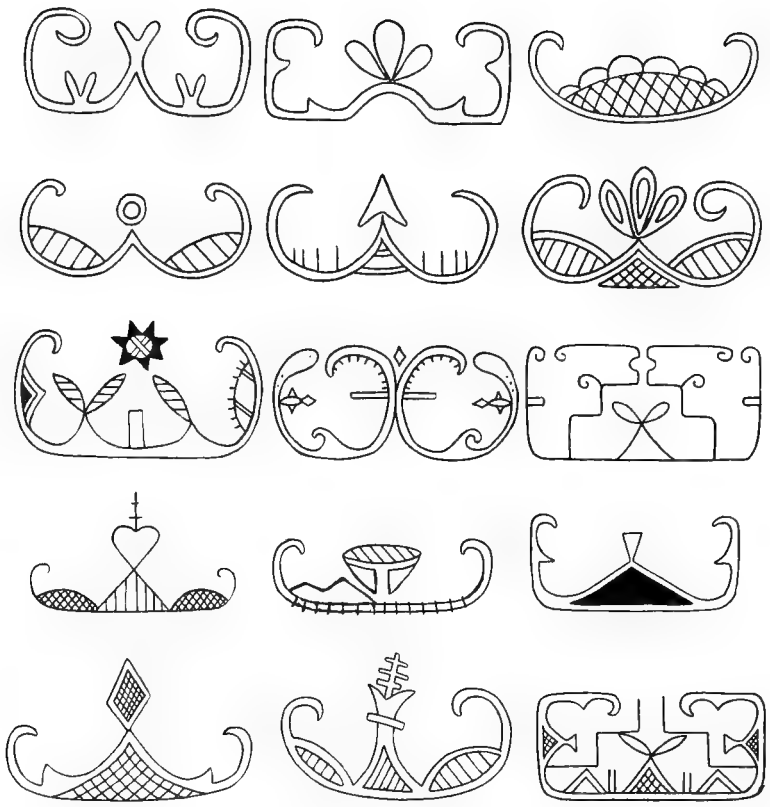


Fig. 4. Penobscot double-curve designs. Heye collection, Univ. of Pa. Museum.

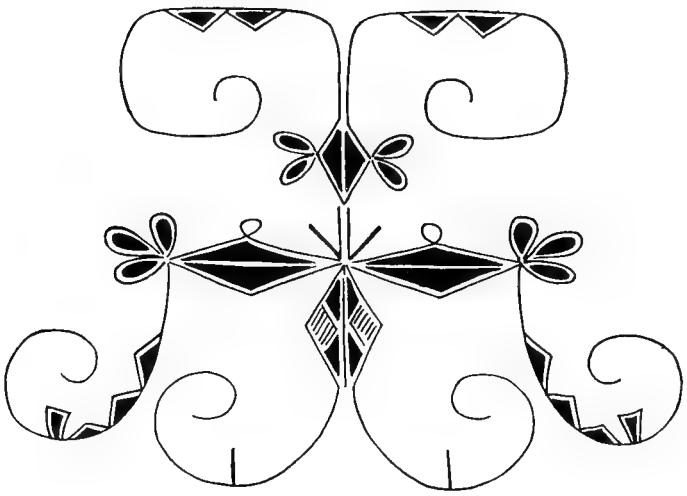


Fig. 5. (a) Penobscot double-curve design denoting central place of mourning in ceremony over a dead chief. From a collar-cape worn by a chief taking part in ceremony. Division of Anthropology. Museum No. III K, 74.

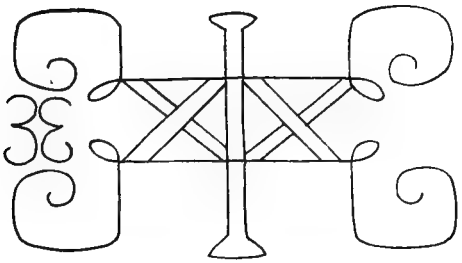


Fig. 5. (b) Double-curve design denoting union of tribes assembled for ceremony. From Penobscot cape. Division of Anthropology. Museum No. III K, 74.

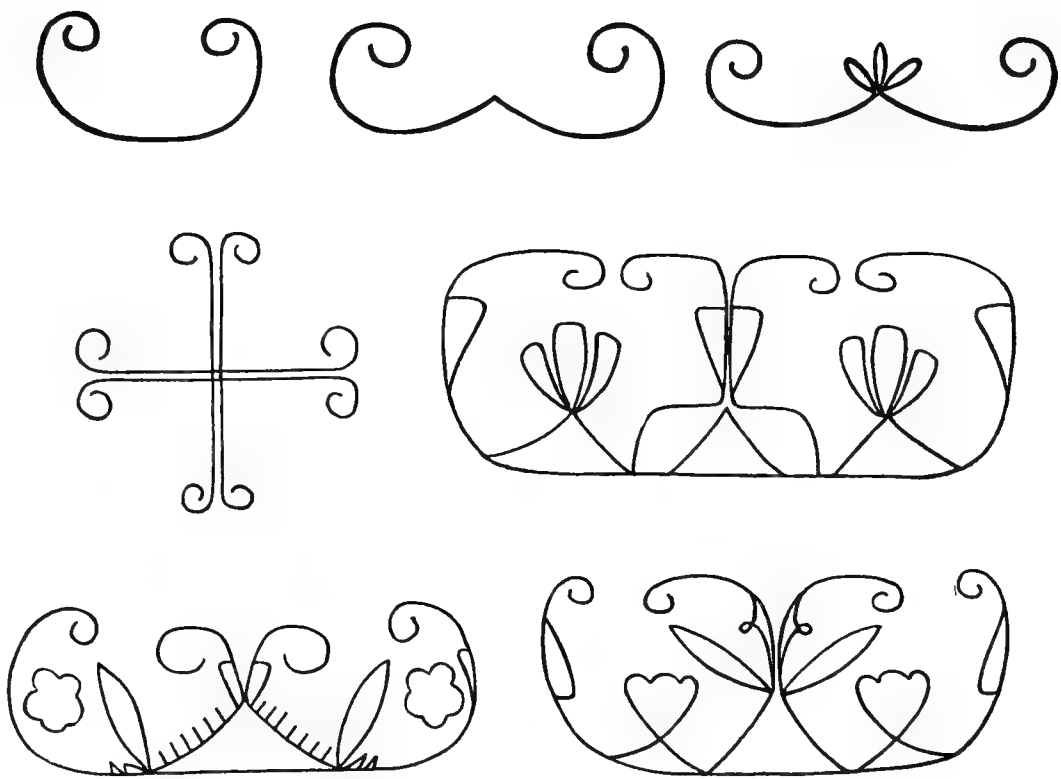


Fig. 6. Malecite double-curve designs. Heye collection, Univ. of Pa. Museum; Geological Survey, Canada. Ottawa; Peabody Museum, Camb., Mass.

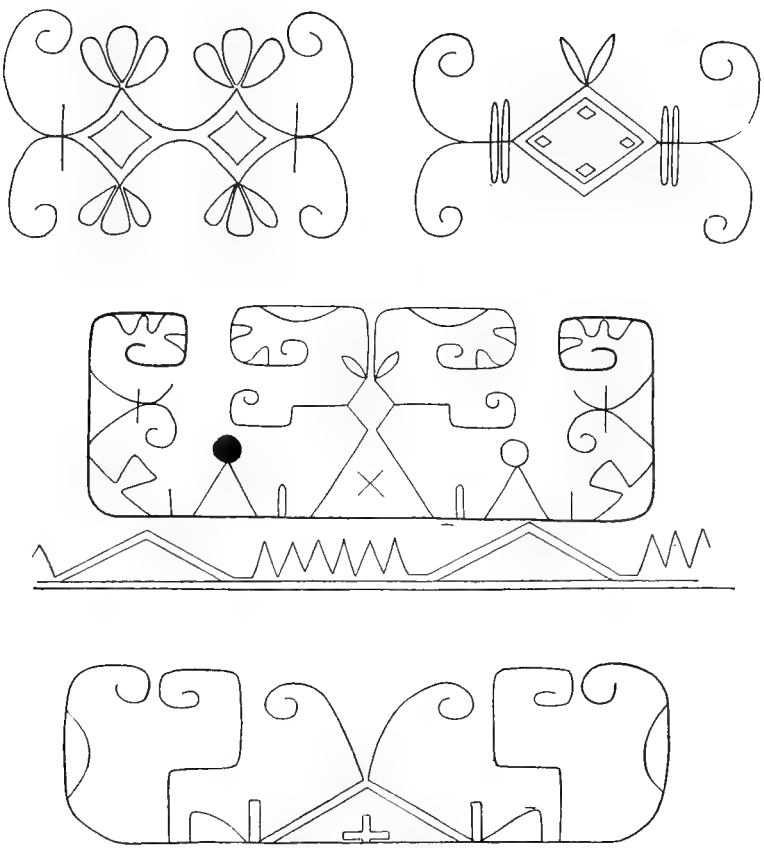


Fig. 7. Passamaquoddy double-curve designs. Heye collection, Univ. of Pa. Museum.

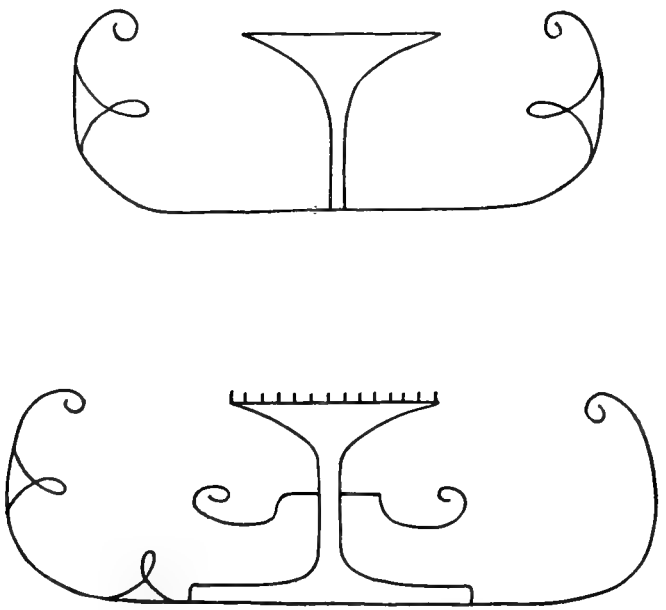


Fig. 9. Micmac double-curve designs.

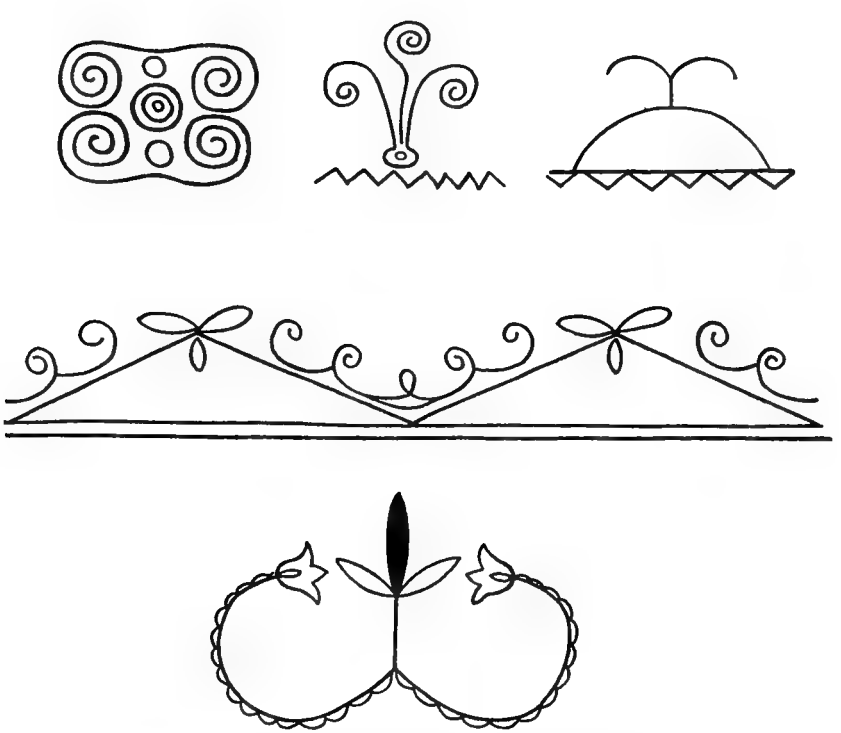


Fig. 10. Iroquois double-curve designs. State Museum, Albany, N. Y., and Heye collection, Univ. of Pa. Museum.

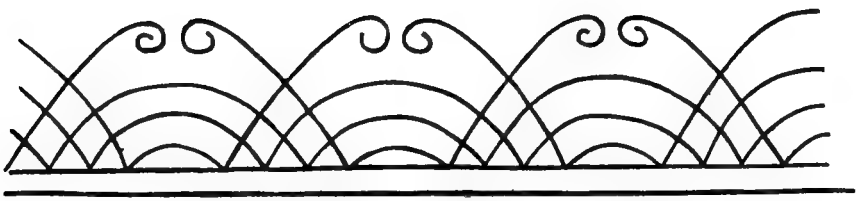


Fig. 11 (a). Delaware double-curve designs. Heye collection, Univ. of Pa. Museum.

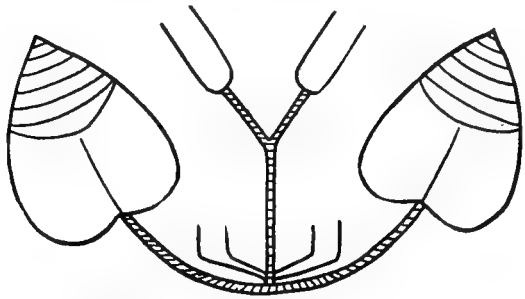


Fig. 11 (b). Mohegan double-curve design. Heye collection, Univ. of Pa. Museum.

Fig. 11 (c). Mohegan example of double-curve.

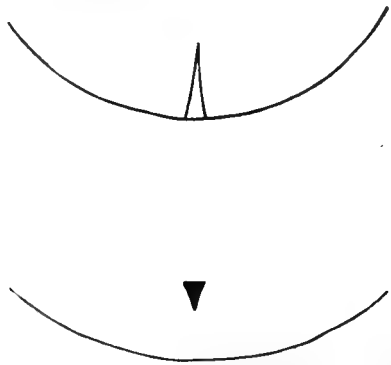


Fig. 11 (d). St. Francis Abenaki double-curve designs.

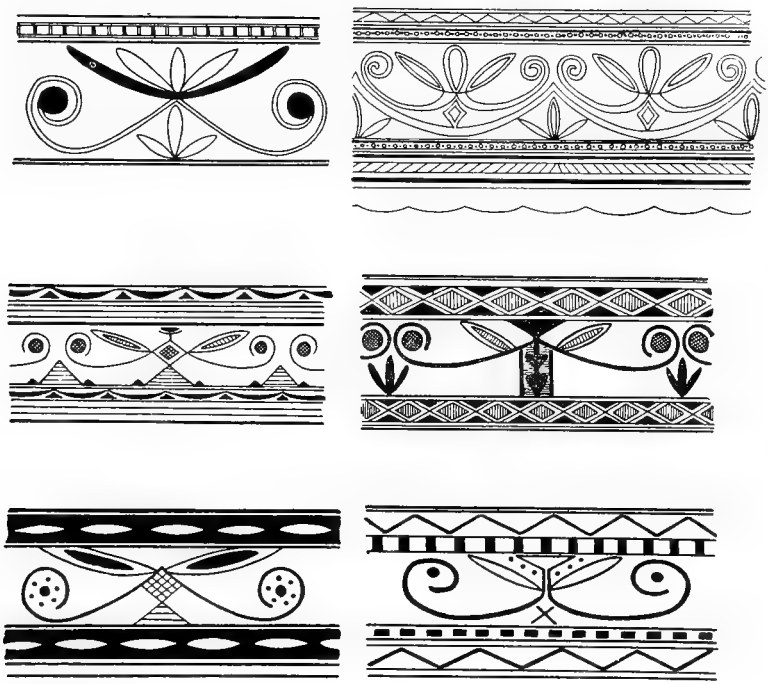


Fig. 12. Naskapi double-curve designs. Top row, Heye collection, Univ. of Pa. Museum; middle row, National Museum, Wash., D. C.; lower row, Peabody Museum, Camb., Mass.

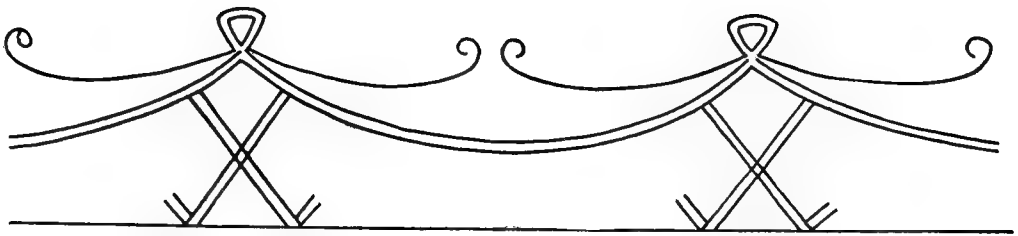


Fig. 13. (a) Double-curve design from Naskapi woman's hat. Heye collection, Univ. of Pa. Museum.

Fig. 13. (b) Eskimo double-curve design. National Museum, Wash., D. C.

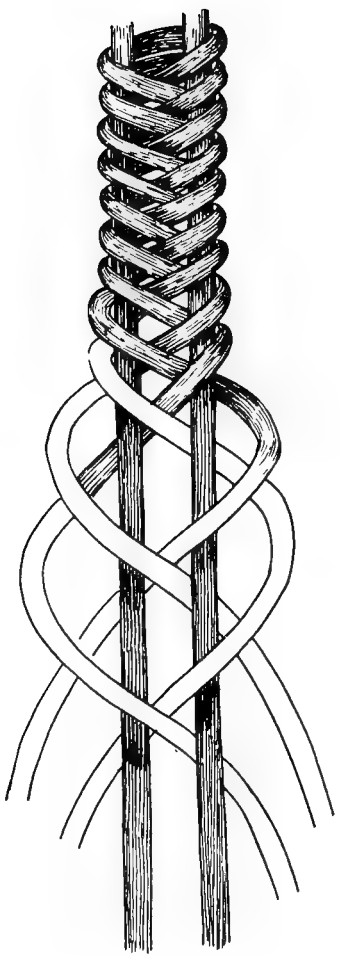


Fig. 14. Detail of braided wool cord used for embroidery by the Montagnais.

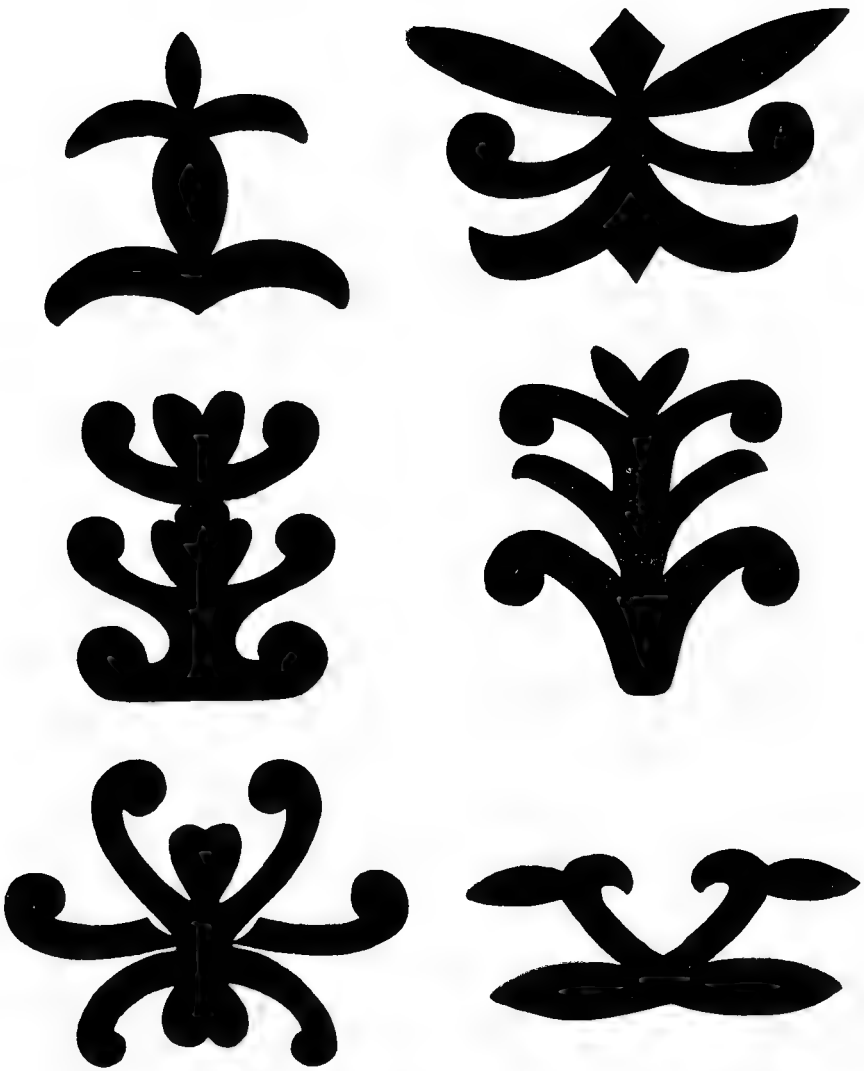


Fig. 15. Montagnais (Lake St. John) double-curve designs, etched on birch bark. Heye collection, Univ. of Pa. Museum.

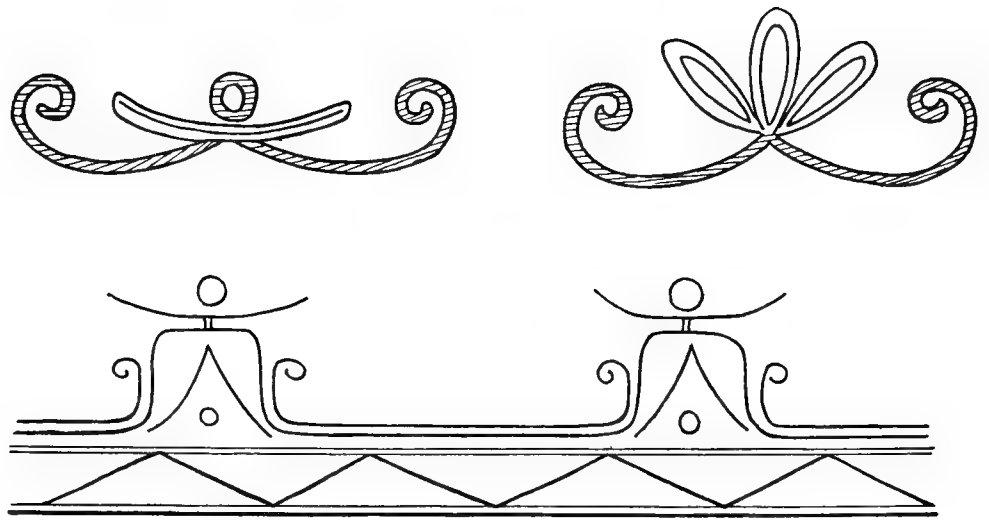
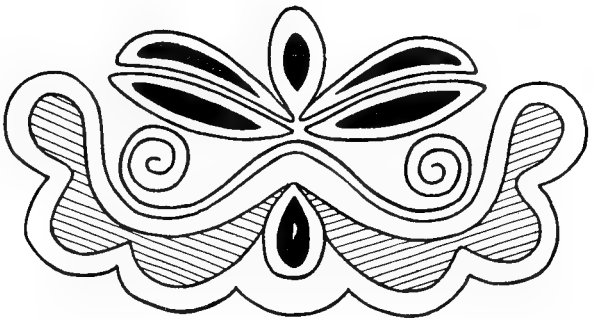


Fig. 16. Montagnais (Bersimis) double-curve designs. Heye collection, Univ. of Pa. Museum.



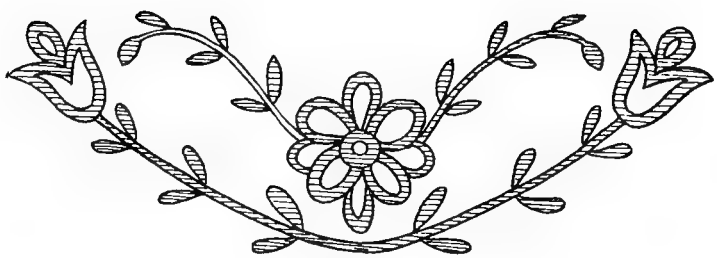


Fig. 17. Mistassini double-curve designs. Heye collection, Univ. of Pa. Museum.

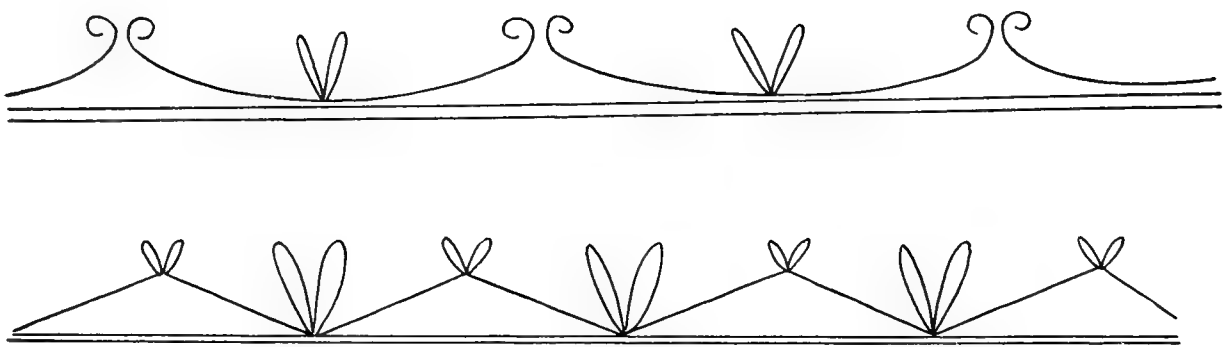


Fig. 18. Huron double-curve designs from woman's legging.

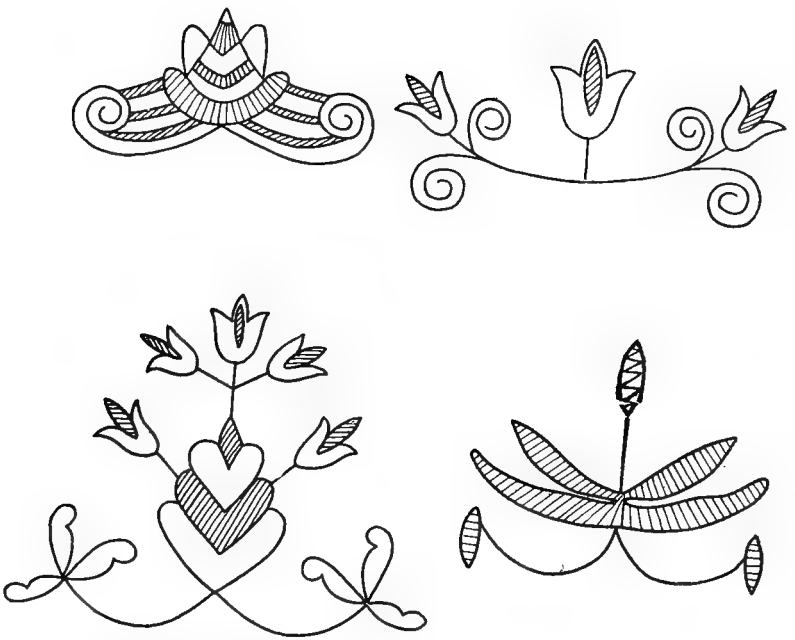


Fig. 19. Plains Cree (?) double-curve designs. Heye collection, Univ. of Pa. Museum.

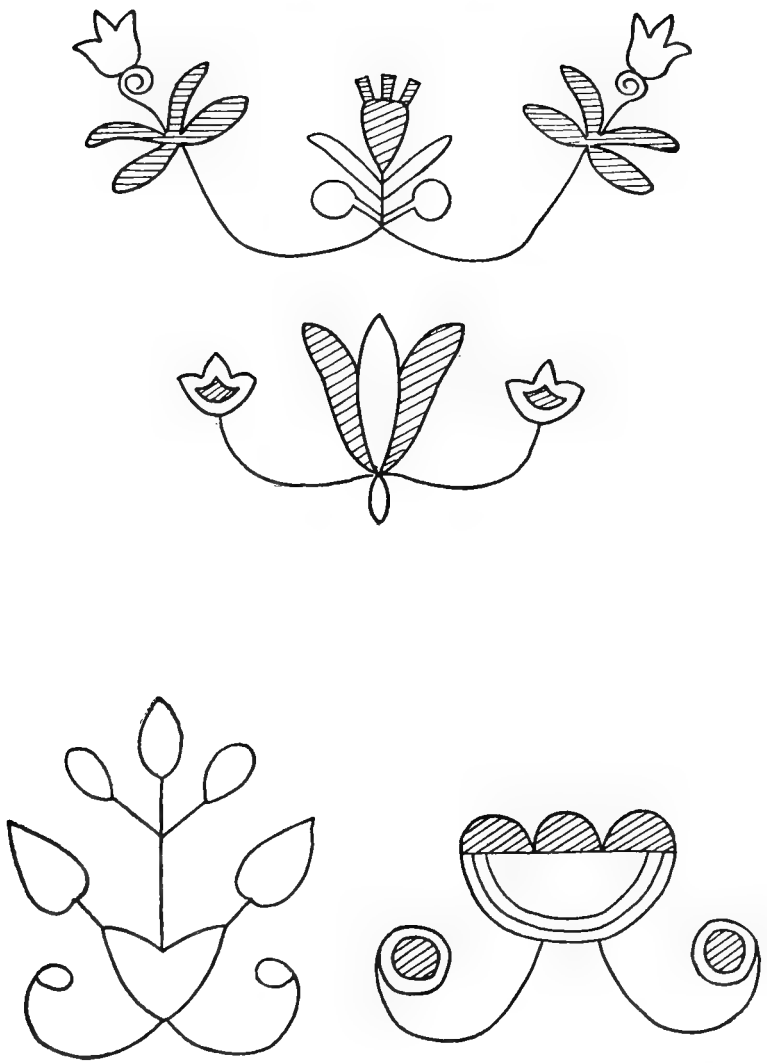


Fig. 20. Blackfoot double-curve designs. Northern Plains double-curve designs. Heye collection, Univ. of Pa. Museum.

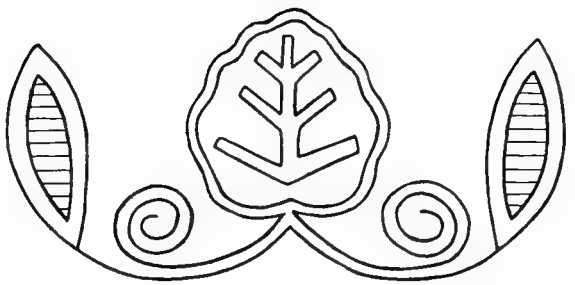


Fig. 21. Ojibwa double-curve designs. Heye collection, Univ. of Pa. Museum

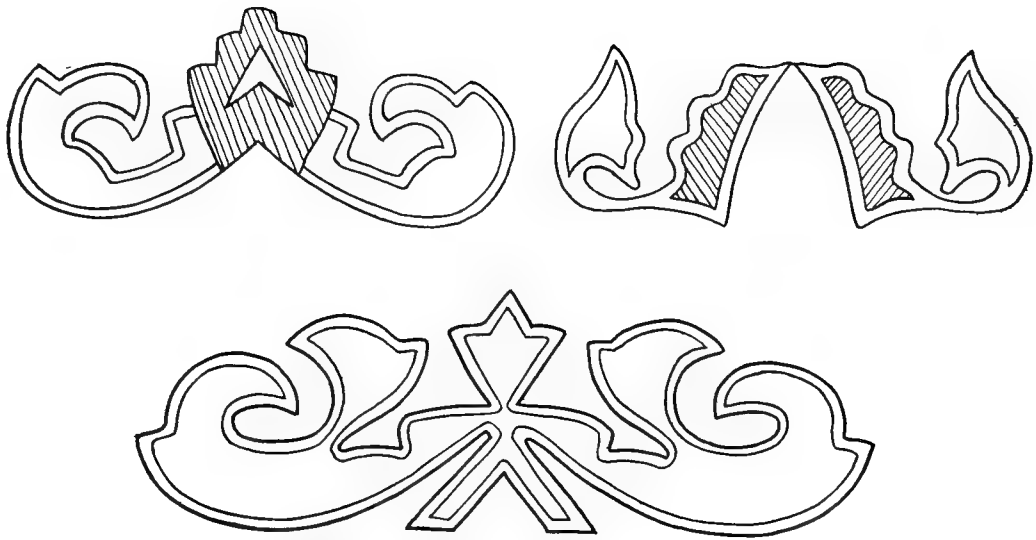


Fig. 22. Sauk and Fox double-curve designs

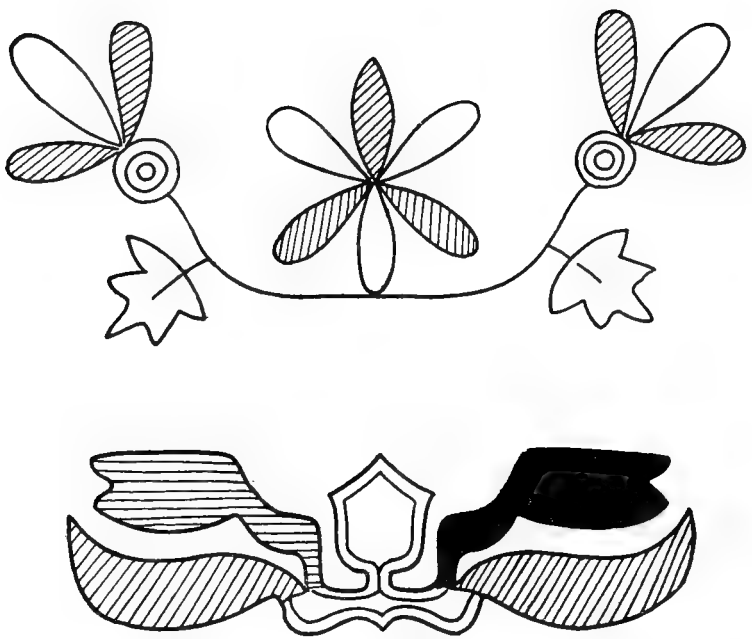


Fig. 23. Pottawatomi double-curve designs.

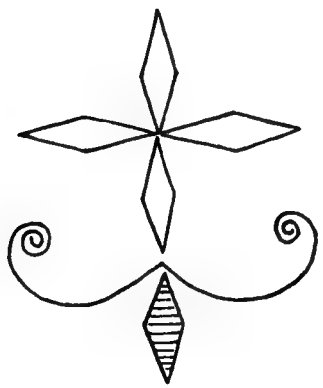


Fig. 24. Winnebago (?) double-curve design. Heye collection, Univ. of Pa. Museum.

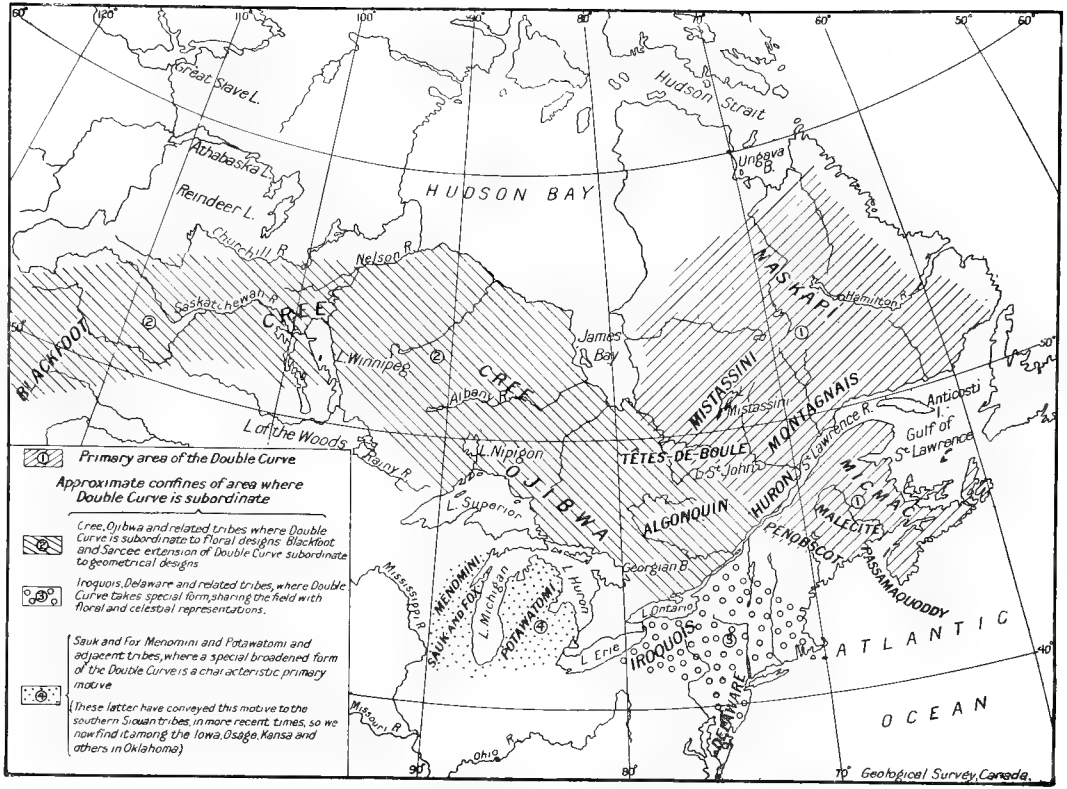


Fig. 25. General distribution of the prevailing types of design.

PLATE I.

Penobscot chief's regalia. Collar with peace and mourning symbolism.

Division of Anthropology, Museum No. III K, 74.

Collected by F. G. Speck at Oldtown, Me.

PLATE II.

Malecite beaded collar.

Division of Anthropology, Museum No. III E, 27.

Collected by W. H. Mechling.

PLATE III.

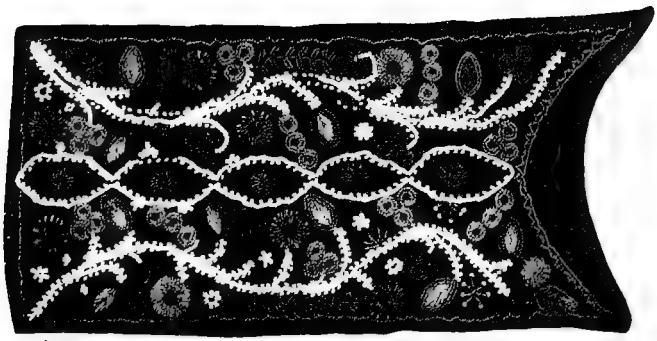
a— Malecite squaw cap.

b— Malecite beaded breast-piece.

Division of Anthropology, Museum Nos. III E, 28; III E, 30.

Collected by W. H. Mechling.

a



b

Plate IV.

a— Micmac beaded squaw cap.

b— Micmac beaded cap for women.

Division of Anthropology, Museum Nos. III F, 65; III F, 53.
Collected by W. H. Mechling at Richibucto, N. B.

a

b

PLATE V.

Micmac beaded coat.

Division of Anthropology, Museum No. III F, 64.

Collected by W. H. Mechling at St. Mary, N. B.

PLATE VI.

a— Iroquois woman's beaded leggings.

b— Iroquois woman's beaded leggings.

c— Huron beaded case for scissors.

d— Iroquois woman's beaded leggings.

Division of Anthropology, Museum Nos. III I, 39; III I, 196; III H, 203; III I, 364.

Collected by E. Sapir (a) and Chief John Gibson (b and d) at Grand river, Ont., and C. M. Barbeau (c) at Wyandotte Reservation, Okla.

a
b
c
d

Plate VII.

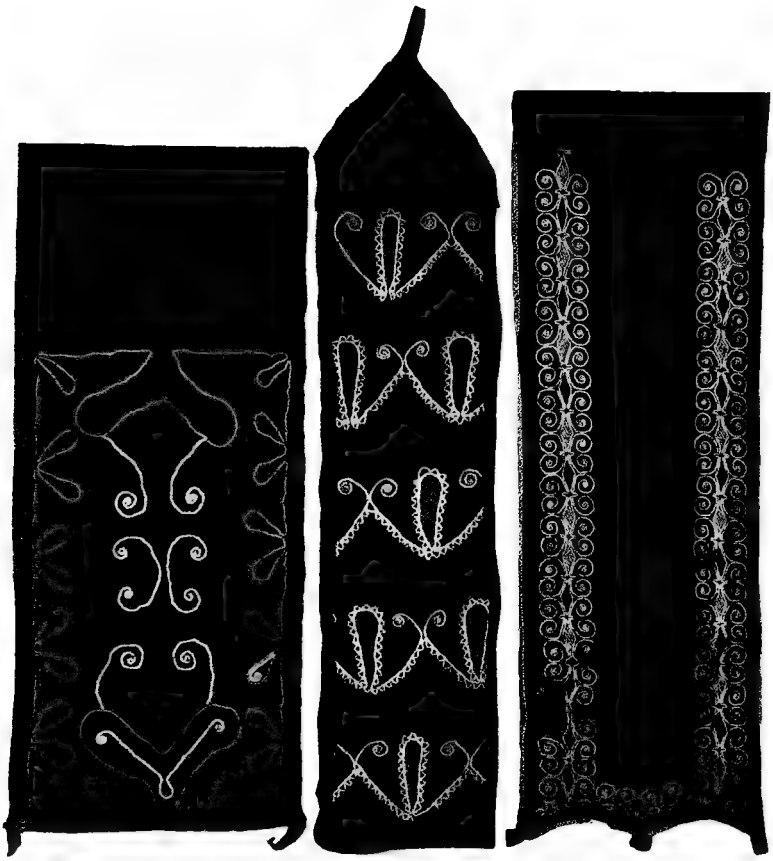
a— Iroquois girdle for cradle-board.

b— Huron beaded work-bag, made from woman's skirt.

c— Iroquois girdle for cradle-board.

Division of Anthropology, Museum Nos. III I, 532; III H, 153; III I, 37.

Collected by C. M. Barbeau (a and b) at Oklahoma, and E. Sapir (c) at Grand river, Ont.



a *b* *c*

PLATE VIII.

Naskapi coat. Heye collection, Univ. of Pa. Museum.

PLATE IX.

a— Montagnais bark box with cover.

b— Cover of bark box.

c— Montagnais bark basket.

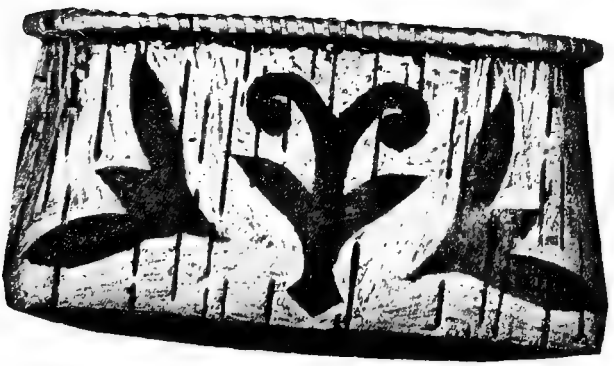
d— Montagnais bark box with lid.

Division of Anthropology. Museum Nos. III C, 162; III C, 162; III C, 211; III C, 17.

Collected by F. G. Speck (a,b,and c), and E. Sapir(d) at Lake St. John.

a

b



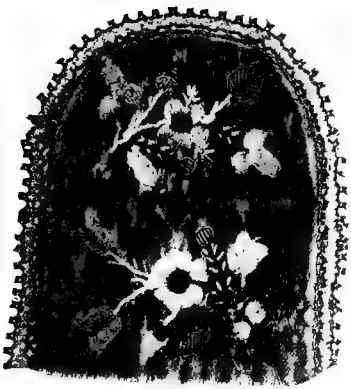
c

d

PLATE X.

a,b,c, and d— Montagnais beaded sealskin tobacco pouches.
Division of Anthropology, Museum Nos. III C, 328; III C, 262; III C, 130; III C, 260.

Collected by F. G. Speck at Seven Islands (b and d), Moisie river (a), and Lake St. John (d).



a

b

c

d

PLATE XI.

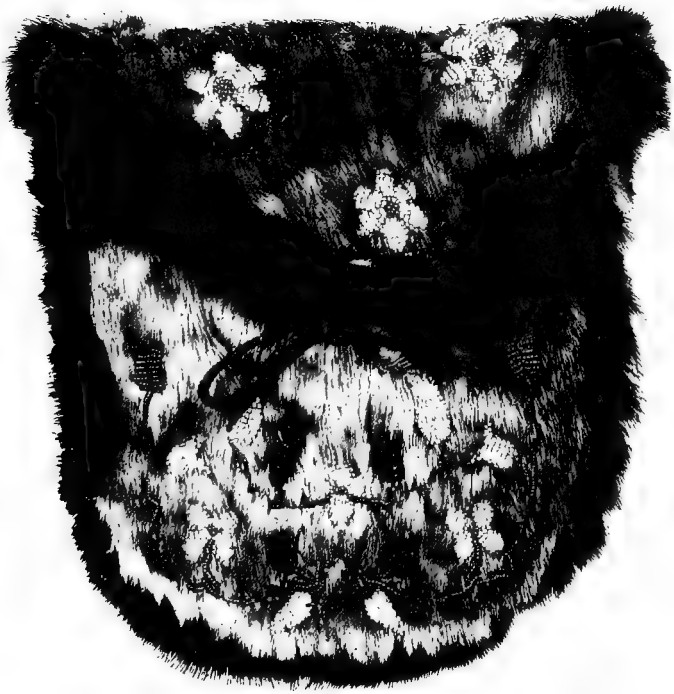
a— Montagnais woman's cap, Bersimis type.

b— Montagnais beaded sealskin shoulder bag, lined with caribou skin and trimmed with marten.

Division of Anthropology, Museum Nos. III C, 9; III C, 269.

Collected by E. Sapir (a) at Lake St. John, and F. G. Speck (b) at Seven Islands.

a



b

PLATE XII.

a— Montagnais beaded cloth bag.

b— Montagnais beaded cloth bag.

c— Montagnais cloth powder sack, embroidered.

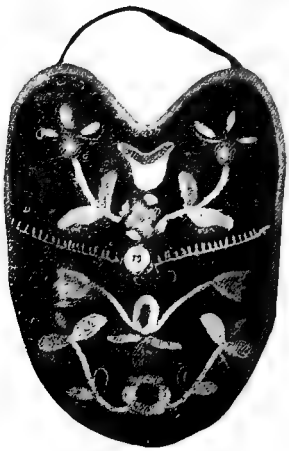
d— Montagnais beaded sealskin tobacco pouch.

Division of Anthropology, Museum Nos. III C, 326; III C, 325; III C, 270; III C, 261.

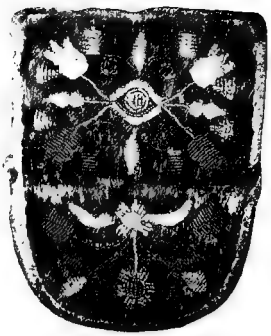
Collected by F. G. Speck at Seven Islands (c and d) and Moisie (a and b).

a

b



c



d

PLATE XIII.

a— Montagnais beaded band for hunter's shot pouch.

b— Montagnais beaded band for hunter's shot pouch.

c— Montagnais silk-embroidered band for hunter's shot pouch.

Division of Anthropology, Museum Nos. III C, 109; III C, 110; III C, 111.

Collected by F. G. Speck at Lake St.John.

a

b

c

PLATE XIV.

a— Mistassini beaded pouch.

b— Mistassini beaded pouch.

c— Mistassini beaded pouch.

d— Mistassini beaded piece for cap decoration.

Division of Anthropology, Museum Nos. III B, 12; III B, 7; III B, 13; and III B, 11.

Collected by F.G. Speck (a,c,and d), and E. Sapir (b) at Lake St. John

a

b

c

d

PLATE XV.

Naskapi or Mistassini beaded shot pouch.

Division of Anthropology, Museum No. III B, 6.

Collected by E. Sapir at Lake St. John.

PLATE XVI.

a— Wyandot beaded purse.

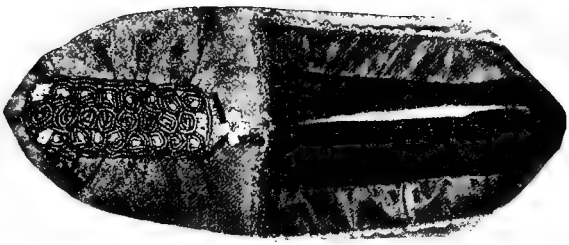
b— Wyandot beaded moccasin.

c— Wyandot buckskin beaded basket.

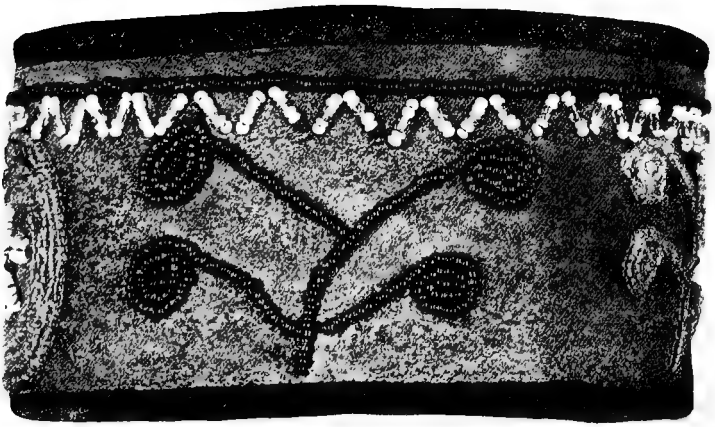
Division of Anthropology, Museum Nos. III H, 281; III H, 289; III H, 286.

Collected by C. M. Barbeau, Wyandotte Reservation, Okla.

a



b



c

PLATE XVII.

a— Huron winter moccasin.

b— Huron slipper with moose-hair embroidery

Division of Anthropology, Museum Nos. III H, 4; III H, 9.

Collected by C. M. Barbeau at Lorette, Que.

a *b*

PLATE XVIII.

Osage beaded moccasin.

Division of Anthropology, Museum No. E 20.

Collected by C. M. Barbeau in Oklahoma.

CLASSIFIED LIST OF RECENT REPORTS OF GEOLOGICAL SURVEY.

Since 1910, reports issued by the Geological Survey have been called memoirs and have been numbered Memoir 1, Memoir 2, etc. Owing to delays incidental to the publishing of reports and their accompanying maps, not all of the reports have been called memoirs, and the memoirs have not been issued in the order of their assigned numbers, and, therefore, the following list has been prepared to prevent any misconceptions arising on this account.

Memoirs and Reports Published During 1910.

REPORTS

Report on a geological reconnaissance of the region traversed by the National Transcontinental railway between Lake Nipigon and Clay lake, Ont. —by W. H. Collins. No. 1059.

Report on the geological position and characteristics of the oil-shale deposits of Canada—by R. W. Ells. No. 1107.

A reconnaissance across the Mackenzie mountains on the Pelly, Ross' and Gravel rivers, Yukon and North West Territories—by Joseph Keele. No. 1097.

MEMOIRS—GEOLOGICAL SERIES.

MEMOIR 1. *No. 1, Geological Series.* Geology of the Nipigon basin, Ontario—by Alfred W. G. Wilson.

MEMOIR 2. *No. 2, Geological Series.* Geology and ore deposits of Hedley Mining district, British Columbia—by Charles Camsell.

MEMOIR 3. *No. 3, Geological Series.* Palæoniscid fishes from the Albert shales of New Brunswick—by Lawrence M. Lambe.

MEMOIR 5. *No. 4, Geological Series.* Preliminary memoir on the Lewes and Nordenskiold Rivers coal district, Yukon Territory —by D. D. Cairnes.

MEMOIR 6. *No. 5, Geological Series.* Geology of the Haliburton and Bancroft areas, Province of Ontario—by Frank D. Adams and Alfred E. Barlow.

MEMOIR 7. *No. 6, Geological Series.* Geology of St. Bruno mountain, Province of Quebec—by John A. Dresser.

MEMOIRS—TOPOGRAPHICAL SERIES.

MEMOIR 11. *No. 1, Topographical Series.* Triangulation and spirit levelling of Vancouver island, B.C., 1909—by R. H. Chapman.

Memoirs and Reports Published During 1911.

REPORTS

Report on a traverse through the southern part of the North West Territories, from Lac Seul to Cat lake, in 1902—by Alfred W. G. Wilson. No. 1006.

Report on a part of the North West Territories drained by the Winisk and Upper Attawapiskat rivers—by W. McInnes. No. 1080.

Report on the geology of an area adjoining the east side of Lake Timiskaming—by Morley E. Wilson. No.1064.

MEMOIRS—GEOLOGICAL SERIES.

MEMOIR 4. *No. 7, Geological Series.* Geological reconnaissance along the line of the National Transcontinental railway in western Quebec—by W. J. Wilson.

MEMOIR 8. *No. 8, Geological Series.* The Edmonton coal field, Alberta —by D. B. Dowling.

MEMOIR 9. *No. 9, Geological Series.* Bighorn coal basin, Alberta—by G. S. Malloch.

MEMOIR 10. *No. 10, Geological Series.* An instrumental survey of the shore-lines of the extinct lakes Algonquin and Nipissing in southwestern Ontario—by J. W. Goldthwait.

MEMOIR 12. *No. 11, Geological Series.* Insects from the Tertiary lake deposits of the southern interior of British Columbia, collected by Mr. Lawrence M. Lambe, in 1906—by Anton Handlirsch.

MEMOIR 15. *No. 12, Geological Series.* On a Trenton Echinoderm fauna at Kirkfield, Ontario—by Frank Springer.

MEMOIR 16. *No. 13, Geological Series.* The clay and shale deposits of Nova Scotia and portions of New Brunswick—by Heinrich Ries assisted by Joseph Keele.

MEMOIRS—BIOLOGICAL SERIES.

MEMOIR 14. *No. 1, Biological Series.* New species of shells collected by Mr. John Macoun at Barkley sound, Vancouver island, British Columbia—by William H. Dall and Paul Bartsch.

Memoirs Published During 1912.

MEMOIRS—GEOLOGICAL SERIES.

MEMOIR 13. *No. 14, Geological Series.* Southern Vancouver island—by Charles H. Clapp.

MEMOIR 21. *No. 15, Geological Series.* The geology and ore deposits of Phoenix, Boundary district, British Columbia—by O. E. LeRoy.

MEMOIR 24. *No. 16, Geological Series.* Preliminary report on the clay and shale deposits of the western provinces—by Heinrich Ries and Joseph Keele.

MEMOIR 27. *No. 17, Geological Series.* Report of the Commission appointed to investigate Turtle mountain, Frank, Alberta, 1911.

MEMOIR 28. *No. 18, Geological Series.* The geology of Steeprock lake, Ontario—by Andrew C. Lawson. Notes on fossils from limestone of Steeprock lake, Ontario—by Charles D. Walcott.

Memoirs Published During 1913.

MEMOIRS—GEOLOGICAL SERIES.

MEMOIR 17. *No. 28, Geological Series.* Geology and economic resources of the Larder Lake district, Ont., and adjoining portions of Pontiac county, Que.—by Morley E. Wilson.

MEMOIR 18. *No. 19, Geological Series.* Bathurst district, New Brunswick—by G. A. Young.

MEMOIR 26. *No. 34, Geological Series.* Tulameen Mining district, B.C. —by C. Camsell.

MEMOIR 29. *No. 32, Geological Series.* Oil and gas prospects of the northwest provinces of Canada—by W. Malcolm.

MEMOIR 31. *No. 20, Geological Series.* Wheaton district, Yukon Territory—by D. D. Cairnes.

MEMOIR 33. *No. 30, Geological Series.* The geology of Gowganda Mining division—by W. H. Collins.

MEMOIR 35. *No. 29, Geological Series.* Reconnaissance along the National Transcontinental railway in southern Quebec —by John A. Dresser.

MEMOIR 37. *No. 22, Geological Series.* Portions of Atlin district, B.C. —by D. D. Cairnes.

MEMOIR 38. *No. 31, Geological Series.* Geology of the North American Cordillera at the forty-ninth parallel, Parts I and II—by Reginald Aldworth Daly.

Memoirs Published During 1914.

MEMOIRS—GEOLOGICAL SERIES.

MEMOIR 23. *No. 23, Geological Series.* Geology of the coast and islands between the Strait of Georgia and Queen Charlotte sound, B.C.—by J. Austen Bancroft.

MEMOIR 25. *No. 21, Geological Series.* Report on the clay and shale deposits of the western provinces (Part II)—by Heinrich Ries and Joseph Keele.

MEMOIR 30. *No. 40, Geological Series.* The basins of Nelson and Churchill rivers—by William McInnes.

Memoirs in Press, February 10, 1914.

MEMOIR 40. *No. 24, Geological Series.* The Archæan geology of Rainy lake—by Andrew C. Lawson.

MEMOIR 32. *No. 25, Geological Series.* Portions of Portland Canal and Skeena Mining divisions, Skeena district, B.C.—by R. G. McConnell.

MEMOIR 19. *No. 26, Geological Series.* Geology of Mother Lode and Sunset mines, Boundary district, B.C.—by O. E. LeRoy.

MEMOIR 22. *No. 27, Geological Series.* Preliminary report on the serpentines and associated rocks in southern Quebec—by John A. Dresser.

MEMOIR 36. *No. 33, Geological Series.* Geology of the Victoria and Saanich map-areas, B.C.—by C. H. Clapp.

MEMOIR 39. *No. 35, Geological Series.* Kewagama Lake map-area, Quebec—by M. E. Wilson.

MEMOIR 43. *No. 36, Geological Series.* St. Hilaire (Belœil) and Rougemont mountains, Quebec—by J. J. O'Neill.

MEMOIR 44. *No. 37, Geological Series.* Clay and shale deposits of New Brunswick—by J. Keele.

MEMOIR 20. *No. 41, Geological Series.* Gold fields of Nova Scotia—by W. Malcolm.

MEMOIR 41. *No. 38, Geological Series.* The "Fern Ledges" Carboniferous flora of St. John, New Brunswick—by Marie C. Stopes.

MEMOIR 47. *No. 39, Geological Series.* Clay and shale deposits of the western provinces, Part III—by Heinrich Ries.

MEMOIR 42. *No. 1, Anthropological Series.* The double-curve motive in northeastern Algonkian art—by Frank G. Speck.

MEMOIR 48. *No. 2, Anthropological Series.* Some myths and tales of the Ojibwa of southeastern Ontario—collected by Paul Radin.

MEMOIR 45. *No. 3, Anthropological Series.* The inviting-in feast of the Alaska Eskimo—by E. W. Hawkes.

MEMOIR 49. *Anthropological Series.* Malecite tales—by W. H. Mechling.